

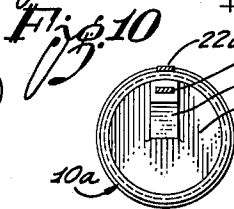
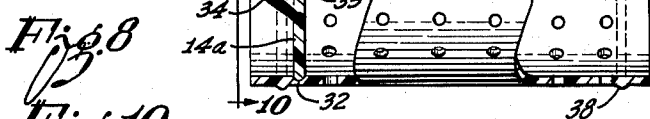
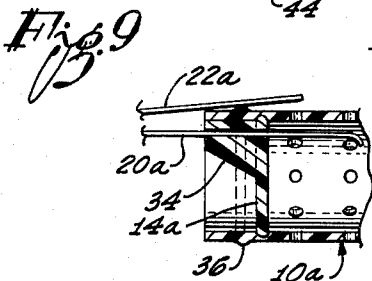
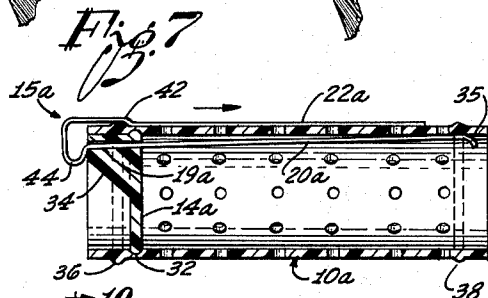
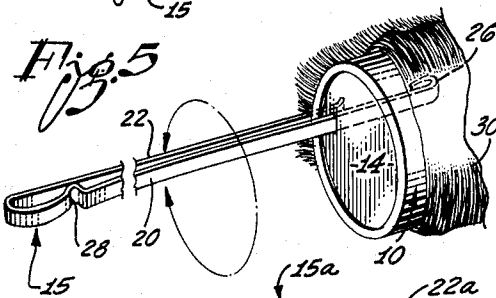
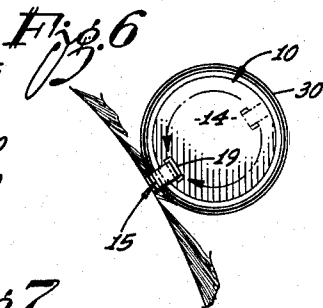
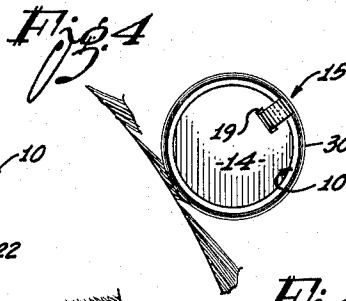
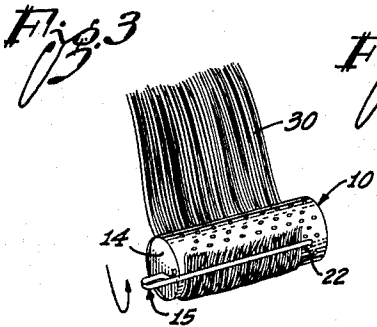
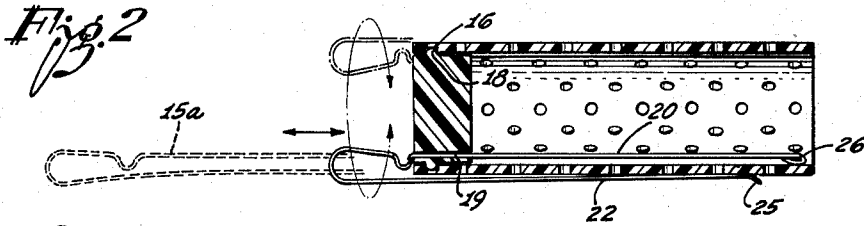
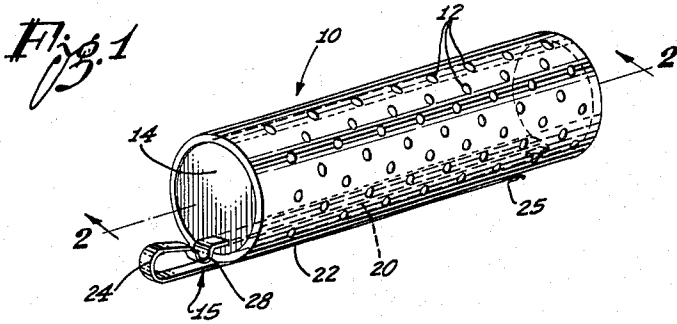
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3,241,561

HAIR ROLLER

Original Filed Jan. 9, 1961



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3,241,561

HAIR ROLLER

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Continuation of application Ser. No. 81,291, Jan. 9, 1961.

This application Dec. 24, 1964, Ser. No. 422,072

7 Claims. (Cl. 132-40)

This is a continuation of application Serial No. 81,291, filed Jan. 9, 1961 and entitled "Hair Roller," which is now abandoned.

This invention relates to a device for forming curls in a head of hair and, more particularly, relates to the combination of a cylindrical form on which a strand of hair is to be wound and means to keep the wound hair in place on the cylindrical form until the curl sets.

Various expedients have been suggested heretofore for retaining a wound strand of hair on a cylindrical form but, in general, the best expedient is a bobby pin or like means that will positively clamp the wound strand in place. If a conventional bobby pin is employed, however, the user must hold the wound cylindrical form with one hand and use the other hand, first, to grope for a bobby pin, and then to maneuver the bobby pin into an effective clamping position. This procedure is both awkward and time consuming.

The present invention remedies the situation by interconnecting the cylindrical form and the bobby pin in such a manner that the two cannot be separated, and it never becomes necessary for the user to grope for a bobby pin. The pin is mounted on the cylindrical form in a manner such that it is not only retractable, but it is held in substantially parallel relationship with the outer surface of the cylindrical form at all times so that the user may advance and retract the pin to and from its clamping position without groping and without maneuvering the pin to place the pin in position to be moved. The pin is thus moved by a simple push-pull reciprocal action on the pin when so held in parallelism with the cylindrical form.

A certain problem arises in that the bobby pin must clamp the wound strand of hair to the cylindrical form at whatever point around the circumference of the cylindrical form will result in the cylindrical form being held close to the user's head. The bobby pin must be positioned to engage the strand of hair as close to the head as possible. The problem is to mount the bobby pin on the cylindrical form inseparably and retractably and yet to permit the retracted bobby pin to be shifted to any circumferential point of the cylindrical form.

This problem is solved by mounting the bobby pin retractably in a retainer means that is journaled for rotation in the cylindrical form near one end thereof, and which also serves to hold the bobby pin in substantially parallel relationship with the cylindrical form when in retracted position.

Initially, the bobby pin is retracted to permit the end of the strand of hair to be positioned on the circumference of the cylindrical form. The bobby pin is then advanced to clamp the end of the strand for the purpose of carrying out the winding operation. After the strand of hair is fully wound onto the cylindrical form, the user retracts the bobby pin, rotates the retracted bobby pin and the retainer in which the pin is mounted for correct positioning of the retracted bobby pin circumferentially of the cylindrical form, and then advances the bobby pin to its effective clamping position to clamp the fully wound strand of hair and to hold the wound cylindrical form close to the user's head while the hair dries to set the curl.

Another problem that arises is that the bobby pin must not only clamp the end of the strand of hair to the cylindrical form prior to the winding operation, but the bobby

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pin must permit the strand of hair to be fully wound over both the cylindrical form and the bobby pin without interference from the bobby pin, and must have the ability to be retracted without interfering with the fully wound strands and later to be advanced over the fully wound strand of hair to clamp the fully wound strand as close as possible to the user's head.

This latter problem is solved by shaping the bobby pin so that its outer finger or leg is positioned in yieldable contacting relationship with the outer surface of the cylindrical form substantially throughout the length of the finger or leg of the pin. This position and shape of the pin leg or finger serves to clamp the end of the strand of hair tightly on the cylindrical form, allows the strand to be wound tight on the roller without interference from the pin, and enables the user to retract the pin and advance the pin to clamp the fully wound hair at the closest point to the user's head. There is an additional advantage accruing to this configuration of the bobby pin in cooperation with the cylindrical form and that is the full benefit of the spring action of the bobby pin is directed along substantially the entire length of the cylindrical form for initial clamping action of the strand of hair to facilitate the winding of the strand on the cylindrical form and for the subsequent clamping action of the fully wound strand of hair.

A further feature of one practice of the invention is that the leading end of the bobby pin is flexed in its retracted position to a divergent configuration. The divergent configuration causes the advancing bobby pin to slide easily over the wound strand, rather than through the wound strand or under the wound strand. This feature makes it unnecessary for the operator to maneuver the advancing bobby pin with care to make sure that it grips or clamps the full strand.

The features and advantages of the invention will be understood from the following detailed description, together with the accompanying drawing.

In the drawing, which is to be regarded as merely illustrative:

FIGURE 1 is a perspective view of the cylindrical form with the bobby pin in its advanced position;

FIGURE 2 is a longitudinal sectional view showing the bobby pin in its advanced position and showing in dotted lines how the bobby pin may be retracted and shifted around the circumference of the cylindrical form;

FIGURE 3 is a perspective view showing how the bobby pin may be initially used for temporarily clamping the end of a strand of hair to the cylindrical form in preparation for winding the strand into curl form;

FIGURE 4 is an end elevation showing the strand fully wound onto the cylindrical form with the bobby pin still clamping the end of the strand;

FIGURE 5 is a fragmentary perspective view showing how, with the parts positioned as shown in FIGURE 4, the bobby pin may be retracted and then shifted circumferentially to a new position for clamping the cylindrical form close to the wearer's head;

FIGURE 6 is an end elevation showing the bobby pin advanced from the position shown in FIGURE 5 to the desired final clamping position for holding the cylindrical form close to the user's head;

FIGURE 7 is a longitudinal sectional view of a second embodiment of the invention showing the bobby pin in its advanced or effective position;

FIGURE 8 is a similar view showing the bobby pin retracted to its outer limit position;

FIGURE 9 is a fragmentary elevational view showing how the bobby pin shown in FIGURES 7 and 8 is flexed to a divergent configuration at its leading end when the

bobby pin is initially advanced from its fully retracted position; and

FIGURE 10 is an end elevation of the device as seen along the line 10—10 of FIGURE 8, the bobby pin being shown in section.

The first embodiment of the invention shown in FIGURES 1 to 6, inclusive, includes a cylindrical form 10 which may be made of any suitable material. In this example, the cylindrical form is made of a suitable plastic. It is helpful to make the cylindrical form of ventilated construction to promote the drying of the hair wound thereon. For this purpose, the cylindrical form 10 may be provided with numerous distributed perforations 12. Rotatably mounted in one end of the cylindrical form 10 is a retainer 14 for a bobby pin, generally designated 15, which also serves as a guide means for the bobby pin. The retainer 14 is a cylindrical body of suitable material and may be made, for example, of plastic or a suitable metal. To keep the retainer 14 from moving axially relative to the cylindrical form 10, the cylindrical form may be provided with an inner circumferential groove 16 and the retainer may be formed with a complementary circumferential rib or flange 18 that rotatably seats in the groove. It is contemplated that the plastic material of the cylindrical form 10 will be yieldable to the extent necessary to permit the retainer 14 to be forced into its assembled position. The retainer 14 is formed with an eccentrically located aperture or passage 19 for sliding engagement with the bobby pin.

The bobby pin 15 has an inner finger or leg 20 and an outer finger or leg 22, the inner leg being slidably mounted in the passage 19 of the retainer 14. The two legs are interconnected by a loop 24 that serves as a handle at one end of the bobby pin. The leading end of the outer leg 22 is formed with a slight bend 25 to facilitate the movement of the outer leg onto a strand of hair. The inner leg 20 is formed with a suitable stop at its leading end for abutment against the retainer 14 to limit the extent to which the bobby pin may be retracted. In the construction shown, the leading end of the inner leg 20 is bent back on itself to form a loop 26 that serves as the desired stop. It is also desirable to limit the extent to which the bobby pin may be advanced on the cylindrical form. For this purpose, the inner leg 20 of the bobby pin may be formed with an offset 28 which, as shown in FIGURES 1 and 2, serves as a stop at the advanced position of the bobby pin.

The manner in which the device serves its purpose is illustrated by FIGURES 3-6. With the bobby pin 15 retracted to the dotted line position shown at 15a in FIGURE 2, the end of a strand of hair 30 is positioned against the periphery of the cylindrical form 10 and then the bobby pin is advanced to the position shown in FIGURE 3 to clamp the end of the strand of hair to the cylindrical form. The cylindrical form is then rotated counterclockwise to the limit position shown in FIGURE 4 where the strand of hair is completely wound on the cylindrical form. At the final wound position of the cylindrical form the bobby pin 15 may be at any random point around the circumference of the cylindrical form, for example, at the position shown in FIGURE 4.

The next step is for the user to grasp the handle end of the bobby pin and retract the bobby pin out of engagement with the wound strand of hair. Since the retracted bobby pin is still at the circumferential position shown in FIGURE 4, the retainer 14 is then rotated to place the bobby pin near the base end of the strand of hair as indicated in FIGURE 5. The bobby pin is then advanced to its final effective position indicated in FIGURE 6 at which the outer leg 22 of the bobby pin clamps the wound strand of hair against the periphery of the cylindrical form 10. The bobby pin will then hold the strand of hair in position on the cylindrical form while the hair dries to set the curl.

It is to be noted from the foregoing that when the

bobby pin 15 is retracted to the dotted line position shown at 15a in FIGURE 2, the legs 20 and 22 are held in substantially parallel relationship with the outer surface of the cylindrical form 10. In this embodiment, as the stop engages the retainer 14 at a distance from the end of the cylindrical form 10, the leg 20 is held by the aperture or passage 19 in a position such that the bobby pin is positioned at all times in substantially parallel relationship with the outer surface of the cylindrical form. It should also be appreciated that when the outer leg 22 is in the position as shown in FIGURE 2 in solid lines, there is yieldable contact of the leg through substantially its entire length with the outer surface of the cylindrical form to effect a clamping action as the strand of hair is held against the cylindrical form to initiate the winding action such as shown in FIGURE 3. This effective clamping action throughout substantially the entire length of the cylindrical form permits the hair to be wound over the pin such as shown in FIGURE 4 without interference and, when retracted and advanced to a clamping position such as shown in FIGURE 4, without interference. When retracted and advanced to a clamping position such as shown in FIGURE 6, the cylindrical form is as close as possible to the head of the user.

In the embodiment of the invention shown in FIGURE 7, the retainer 14a is in the form of a disc and the cylindrical form 10a is made of flexible plastic with an inner circumferential groove 32 to seat and journal the circumferential edge of the disc. The retainer 14a which may also be made of plastic is formed with a projection or enlargement 34 which serves as a finger piece to facilitate rotation of the retainer by the user.

The bobby pin 15a shown in FIGURES 7 and 8 has inner and outer legs 20a and 22a. The inner leg is longer than the outer leg and has a bent end portion 35 to serve as a stop. In this embodiment, however, when the stop 35 engages the retainer, the legs 20a and 22a are positioned by the aperture 19a so that substantially parallel relationship is maintained when the bobby pin is retracted fully, as clearly illustrated in FIGURE 8. As aforesaid, this maintenance of this substantially parallel relationship eliminates the groping and maneuvering of the pin to a position so that the pin may be advanced to its effective clamping position, as shown in FIGURE 7.

The cylindrical form 10a, which may be made of nylon, is formed with two outer circumferential ribs 36 and 38 near its two opposite ends respectively. When the bobby pin 15a is in its limited advance position shown in FIGURE 7, an offset 42 in the outer leg 22a of the bobby pin forms a shoulder to serve as detent means to yieldingly resist retraction of the bobby pin. At the same time, a loop portion serves as a stop in abutment with the outer side of the retainer 14a. By virtue of this arrangement, the bobby pin is yieldingly retained in its advance position when the device is not in use.

The offset 42 also permits the entire length of the leg 22a to lie flat against the outer surface of the cylindrical form 10a from the offset 42 to the remainder of the leg adjacent the ridge 38. Thus, with the leg 22a held flat against the surface of the cylindrical form 10a, the full clamping efficiency of the bobby pin is utilized both when the hair is initially started and when the strand of hair is fully wound. In other words, this detent 42 permits the cylindrical form to lie flat against the head of the user when the hair is fully wound and also permits the hair to be wound around the cylindrical form without interference from the leg 22a so that the wound hair will have the contour of the cylindrical form 10a.

When the bobby pin is in its limit retracted position shown in FIGURE 8, the bent end portion 35 of the inner leg 20a abuts the inner side of the retainer 14a to limit the outward retraction of the bobby pin and at the same time the end of the outer leg 22a abuts the outer circumferential rib 36 to yieldingly resist advance of the bobby pin. Thus, the outer circumferential rib 36 serves

as detent means to keep the bobby pin retracted and out of the way while the user is initiating an initial winding of a strand of hair on the cylindrical form 10a.

When the bobby pin is initially advanced from the limit retracted position shown in FIGURE 8, the outer circumferential rib 36 deflects and flexes the leading end of the outer leg 22a of the bobby pin outward radially of the cylindrical form 10a in the manner shown in FIGURE 9. It is apparent from an inspection of FIGURE 9 that the divergent flexure of the leading end of the outer leg 22a will cause the outer leg to slide easily over a wound strand of hair instead of penetrating the wound strand or sliding under the wound strand.

A feature of the second embodiment of the invention is the multiple functions of the outer circumferential rib 36. The rib 36 as well as the rib 38 serve in effect as handles to facilitate the effective gripping of the cylindrical form by the user's fingers. The rib 36 also serves as detent means for the bobby pin at the fully advanced position of the bobby pin shown in FIGURE 7 and also serves as detent means at the fully retracted position of the bobby pin shown in FIGURE 9.

My description in specific detail of the selected embodiments of the invention will suggest various changes, substitutions and other departures from my description, within the spirit and scope of the appended claims.

I claim:

1. A device for forming a curl in a head of hair, comprising:

- a hollow cylinder to serve as a form for the winding of a strand of hair thereon, at least one elongated spring finger extending longitudinally of said cylinder and in yieldable engagement with the outer surface of said cylinder through substantially the length of said finger to clamp the wound strand against said outer surface, said finger being movable longitudinally relative to the cylinder between a retracted position at which the leading end of the finger is retracted to one end of the cylinder to permit a strand of hair to be wound on said outer surface and an advanced position at which the leading end of the finger is at the other end of the cylinder to hold a wound strand against said surface,

- a circumferential enlargement on said cylinder at said one end thereof to flex the leading end of the finger outward radially of the cylinder at the retracted position of the finger thereby to direct the leading end of the finger over a wound strand of hair on the cylinder when the finger is shifted from its retracted position to its advanced position, means on said finger to accommodate said circumferential enlargement when said finger is in its advanced position so that said finger can be in yieldable engagement with the outer surface of said cylinder throughout substantially the length of the finger,

means to guide said finger in the advance and retraction of the finger, said guide means including a member rotatably mounted within one end of the hollow cylinder,

means for holding said guide means and said member against axial movement relative to said cylinder,

means cooperative with said member to limit the retraction of said finger at said retracted position of the finger, and

means for holding said finger in alignment with the outer surface of said cylinder when said finger is in retracted position.

2. The device as set forth in claim 1, in which said cylinder is perforated.

3. The device as set forth in claim 1, in which said

means to hold said finger in alignment with the outer surface of said cylinder when said finger is in said retracted position forms part of said guide means.

4. A device for forming a curl in a head of hair comprising:

- a hollow perforated cylinder upon which a strand of hair is to be wound to form a curl,
- a member rotatably mounted within said hollow perforated cylinder adjacent one end thereof,
- means holding said member against axial movement relative to said hollow cylinder,
- a bobby pin, and

means on said member for slidably and eccentrically mounting one leg of said bobby pin for longitudinal reciprocal movement between retracted and advanced positions relative to said cylinder, substantially the entire length of the other leg of said bobby pin being disposed exteriorly of said hollow cylinder and biased toward contacting relationship with the exterior of said hollow cylinder, said other leg adapted in said advanced positions to clamp the free end of a strand against the exterior of said hollow perforated cylinder, after which the cylinder may be rotated relative to the member mounting said bobby pin to curl said strand about said cylinder and over said other leg, whereby the bobby pin may be slidably moved to the retracted position in which said other leg is disengaged from the wound strand of hair, after which said member may be rotated relative to the cylinder to permit the bobby pin to be longitudinally moved to said advanced position to clamp the outer strands of hair wound upon the cylinder closely adjacent the scalp of the user.

5. The device as set forth in claim 4, wherein said member further includes means for holding said one leg of said bobby pin so as to keep said other leg of said bobby pin substantially parallel with the exterior of said hollow cylinder to eliminate groping and maneuvering of said bobby pin as said bobby pin is moved to clamp the outer strands of hair wound upon the cylinder closely adjacent the scalp of the user.

6. The device as set forth in claim 5, wherein said cylinder has a circumferential enlargement at one end thereof to flex said other leg radially outward of the cylinder in said retracted position for directing the end of said other leg over the wound strands of hair, and means on said other leg to accommodate said enlargement when said other leg is disposed externally of the cylinder so that said leg tends to be flat against the exterior of said cylinder.

7. The device set forth in claim 5, wherein said cylinder has a circumferential enlargement, said circumferential enlargement being positioned adjacent one end of said cylinder but slightly spaced therefrom so as to cooperate with one end of said other leg to hold said leg in retracted position to aid the user when initially winding a strand of hair on said cylinder before said strand is clamped on the exterior of said cylinder.

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